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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Abdul Ali

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EXAMINER

TOOMER, CEPHIA D

ART UNIT

PAPER NUMBER

1797

MAIL DATE

DELIVERY MODE

10/30/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/814,864	Applicant(s) ALI ET AL.	
	Examiner Cephia D. Toomer	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 August 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 3-6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 7-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office action is in response to the amendment filed August 8, 2008 in which claims 1 and 8 were amended and claims 13-15 were added.

Specification

1. The disclosure is objected to because of the following informalities: the claim numbers recited in the specification should be noted. Oftentimes the claims that are allowed do not correspond to those set forth in the specification.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 13-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are indefinite because the claims as written are directed to an apparatus, but contain limitations regarding the material that is worked upon.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1 and 7-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yan (US 4,118,201) in view of Longwell (US 4,409,094).

Yan discloses a device for reducing the amount of organic sulfur in coal. The device contains a reactor having three zones (see abstract; Fig. 2). The bottom zone is interpreted to be the same as the claimed "steam heating zone". The second zone is interpreted to be the same as the claimed "promoter zone". This zone is maintained at a temperature in the range of 1800-3000 F. Pulverized coal is fed to the third zone, which is interpreted to be the same as the claimed "reaction zone" and has a temperature in the range of 1100-1700 F to ensure effective desulphurization of the coal. See col. 5, lines 1-10, 60-68; col. 6, lines 5-15, 57-66; col. 7, lines 44-45; Fig 2. Yan teaches the limitations of the claims other than the differences that are discussed below.

Yan does not teach the claimed steam zone temperature. However, generally, differences in temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such temperature is critical. Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. Furthermore, the claim recites that the steam heating zone only be capable of maintaining the claimed temperature. Yan meets this limitation.

Yan does not specifically teach a promoter mixture of copper-iron turnings and sulfur coal of 72 mesh. However, apparatus claims cover what a device is , not what a device does or the material worked upon.

Yan does not disclose the reactor being placed in a tubular furnace. However, Longwell teaches this limitation.

Longwell discloses a reactor for desulfurizing fuel, which is placed in a tube furnace. The furnace contains additional heating elements to allow a uniform axial temperature profile over the length of the reactor (see col. 4, lines 31-37).

It would have been obvious to one of ordinary skill in the art at the time of the invention to place the reactor of Yan in a furnace, as described by Longwell because it would allow the temperature to be easily maintained uniformly through the reactor.

With respect to the length of the zones, It would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the length of the steam, promoter and reaction zones through routine experimentation for the best results. As to optimization of results, a patent will not be granted based upon the optimization of result effective variables when the optimization is obtained through routine experimentation unless there is a showing of unexpected results which properly rebuts the *prima facie* case of obviousness. See *In re Boesch*, 617 F.2d 272,276,205 USPQ 215,219 (CCPA 1980). See also *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936-37 (Fed. Cir. 1990), and *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233,235 (CCPA 1955).

With respect to the movable cabinet, the fact that a claimed device is portable or movable is not sufficient by itself to patentably distinguish over an otherwise old device unless there are new or unexpected results. In re Lindberg, 93 USPQ 23 (CCPA 1952).

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yan in view of Longwell, and further in view of Dolan (US 5,178,785).

Yan and Longwell have been discussed above. Longwell also discloses quartz wool insulation in the reactor. The use of quartz wool is advantageous because of the high temperature properties and chemical inertness of quartz (see col. 4, lines 11-37).

Neither Yan nor Longwell disclose that furnace made of silliminite. However, Dolan teaches this limitation.

Dolan discloses that heat storage bodies are generally composed of materials including silliminite. The materials are chosen based upon their physical properties such as heat storage capacities, specific heat, thermal conductivity, and density (see col. 1, lines 28-34).

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize a silliminite furnace in the process of Yan and Longwell in order to make use of the advantages of the physical properties of silliminite, enhancing the use of the furnace as a heat storage facility.

7. Applicant's arguments have been fully considered but they are not persuasive.

Applicant argues that zone I of Yan has a temperature range of 1800-3000 F whereas the steam zone of the present invention is the lowest temperature range. Applicant argues that Yan has a fluidized reaction zone of 1100-1700 F.

Claim 1 states that the steam zone is capable of maintaining a temperature in the range of 400-500 C and promoter zone is capable of maintaining the zone at a temperature from 950-1100 C. The apparatus disclosed in Yan is capable of maintaining these temperature ranges.

Applicant argues that Yan does not require seam, air or auxiliary coal to be fed into the steam heating zone.

Applicant's claims are open to these additional steps and components.

Applicant argues that Yan does not teach a promoter mixture of copper-iron.

It should be noted that the claims are directed to the apparatus and not the material worked upon.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cephia D. Toomer whose telephone number is 571-272-1126. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1797

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Cephia D. Toomer/
Primary Examiner
Art Unit 1797

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